

1 / 32

FIG. 1

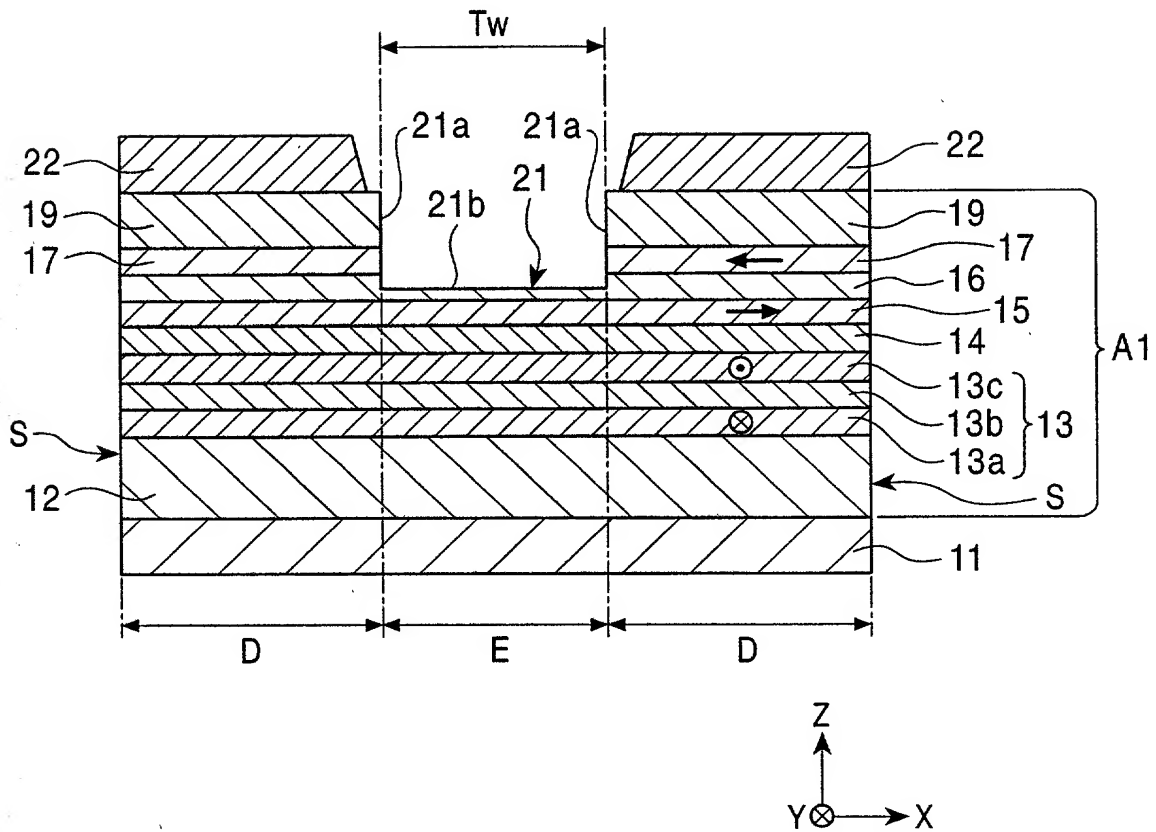
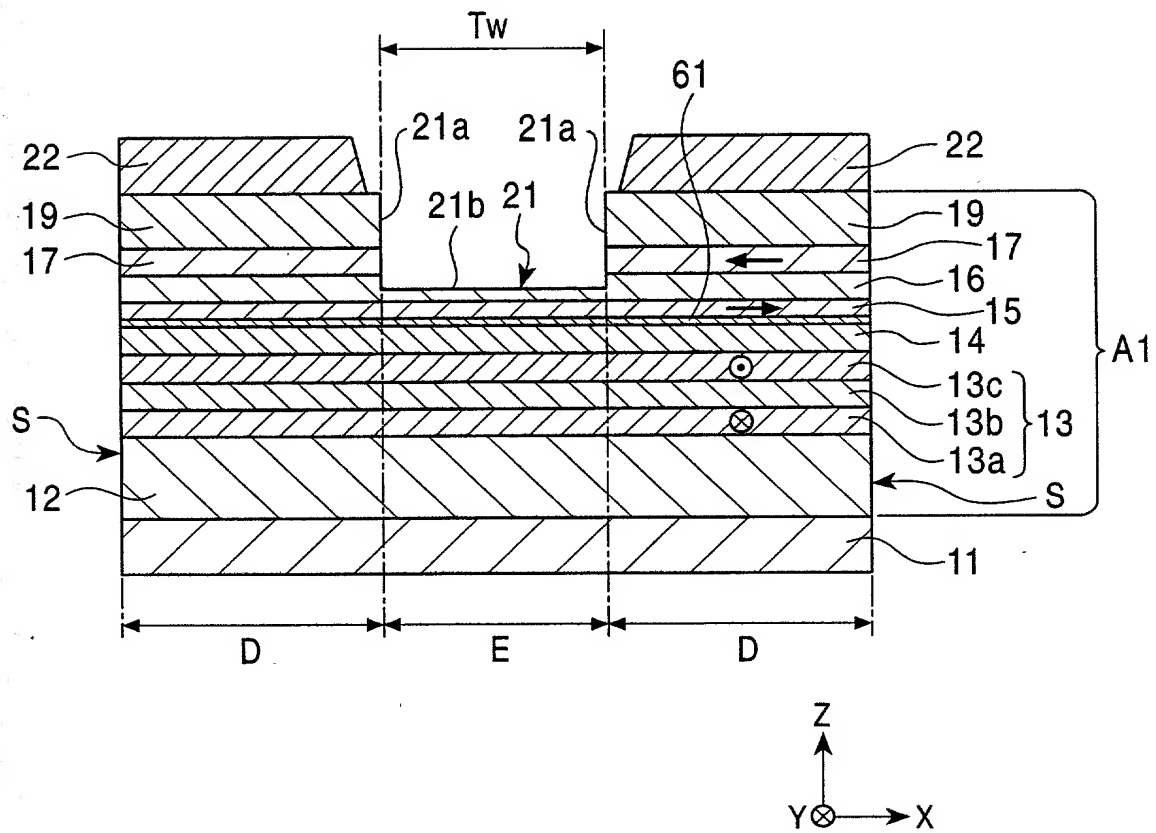
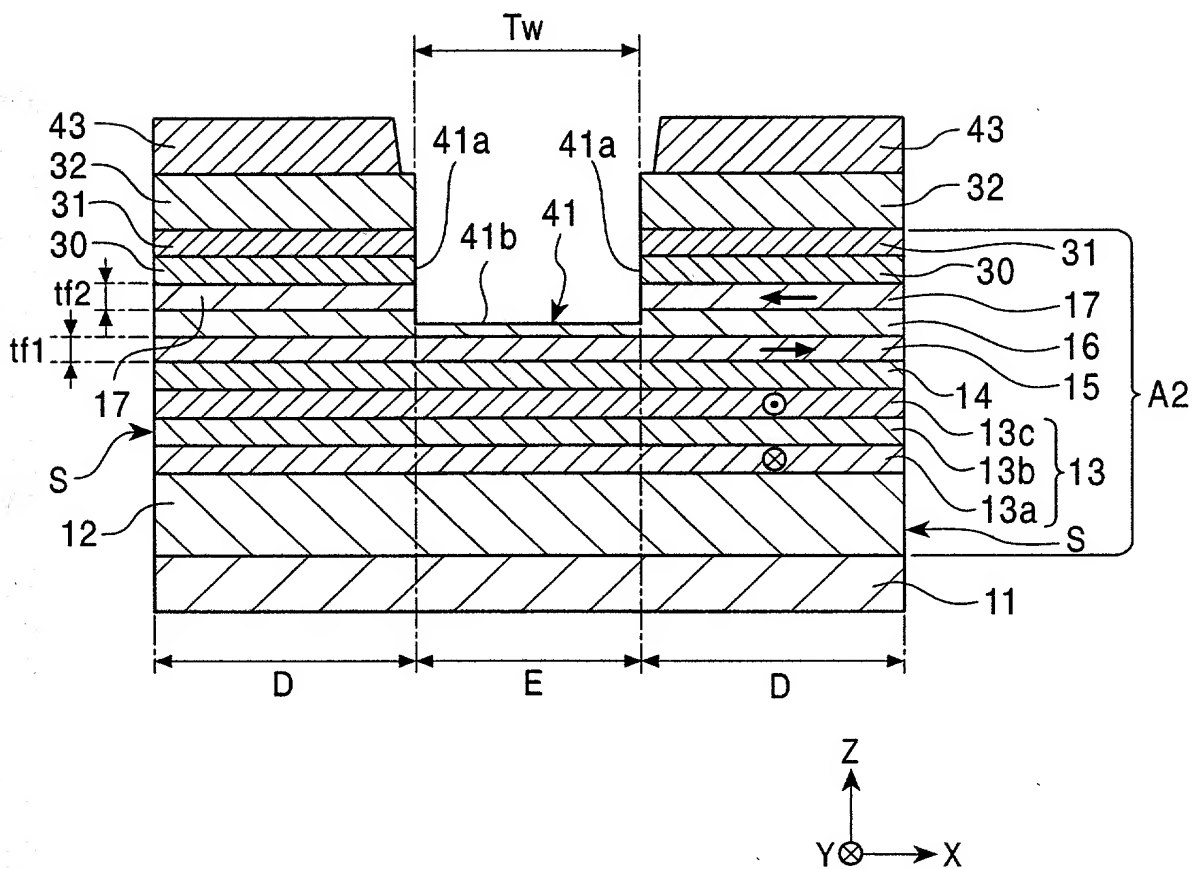


FIG. 2



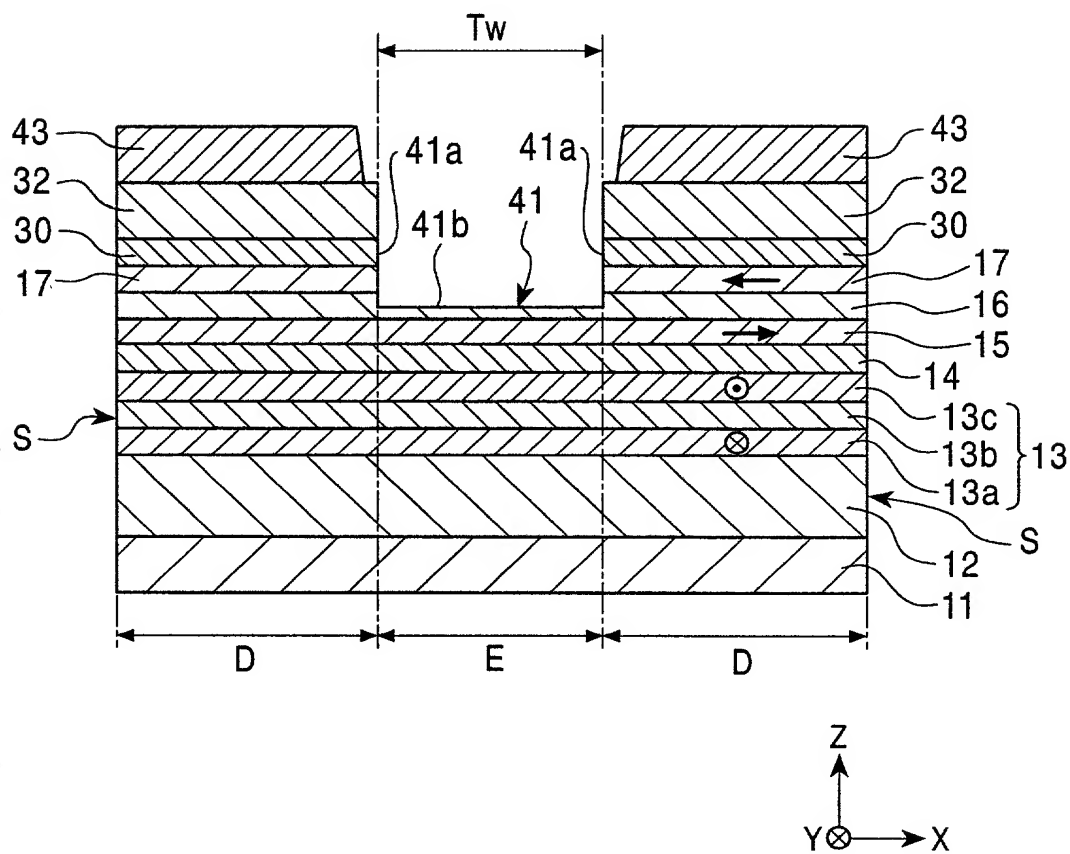
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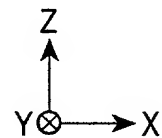
FIG. 3



This diagram shows a cross-section of a semiconductor device. It features a central opening or trench labeled 41, which has side walls 41a and a bottom surface 41b. The width of this opening is denoted as Tw. The device consists of several horizontal layers, each with different hatching patterns. From top to bottom, the layers are labeled: 43, 32, 31, 17, 16, 15, 14, 13c, 13b, 13a, 12, and 11. A bracket groups layers 13a, 13b, and 13c under the label 13. On the left side, vertical dimensions tf1 and tf2 are indicated between dashed lines. Horizontal dimensions D and E are shown at the bottom, representing distances from the center of the opening to the edges and the width of the opening respectively. Arrows indicate current flow directions: a downward arrow in layer 17, upward arrows in layers 16 and 15, and a rightward arrow in layer 13a. Symbols in layer 13 include a circle with a dot (current out of page) and a circle with an X (current into page). A coordinate system at the bottom right shows Z pointing up, Y pointing out of the page (circle with X), and X pointing right.

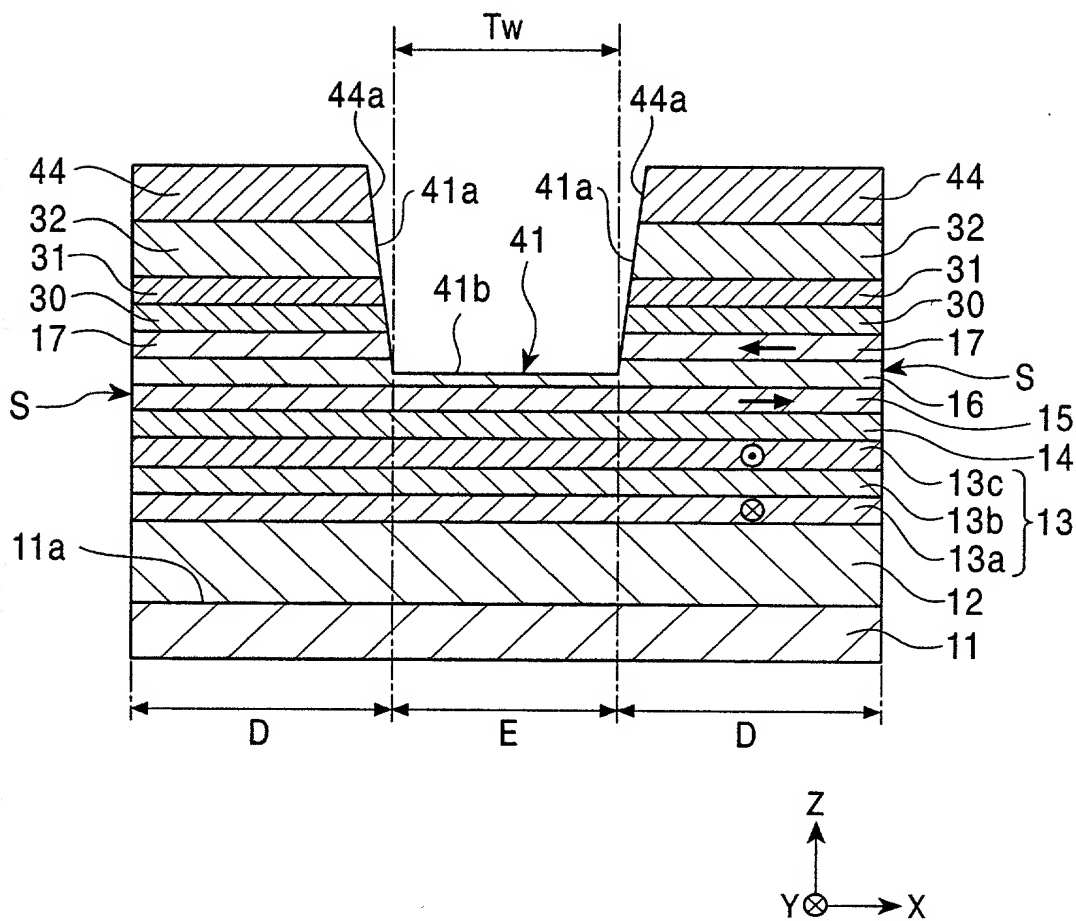
FIG. 5



[illegible]

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FIG. 7



This diagram shows a cross-sectional view of a semiconductor device. A central opening 21 is defined by a top surface 21a and a bottom surface 21b. The width of this opening is labeled Tw. The device is composed of several layers: a top layer 31, a layer 30, a layer 17, a layer 16, a layer 15, a layer 14, and a bottom layer 12. The opening 21 is formed through layers 31, 30, 17, and 16. The bottom surface 21b is located within layer 14. The device is surrounded by a material 50, and the top surface of the device is 32. The bottom surface of the device is 11. The layers 13a, 13b, and 13c are shown as a stack of layers below layer 14. The layers 13a, 13b, and 13c are shown with different hatching patterns. The layers 13a, 13b, and 13c are shown as a stack of layers below layer 14. The layers 13a, 13b, and 13c are shown with different hatching patterns.

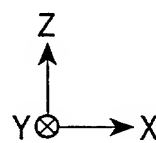




FIG. 9

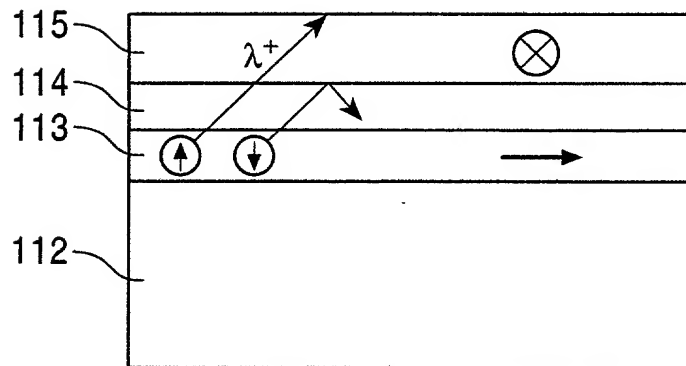


FIG. 10

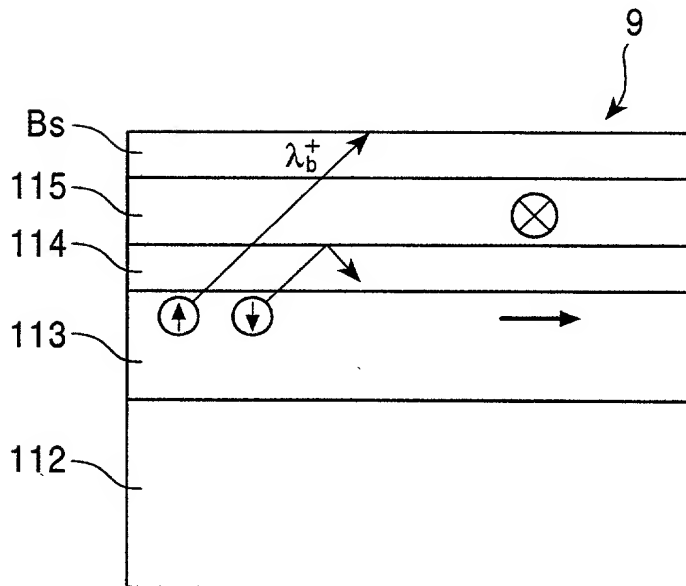


FIG. 11

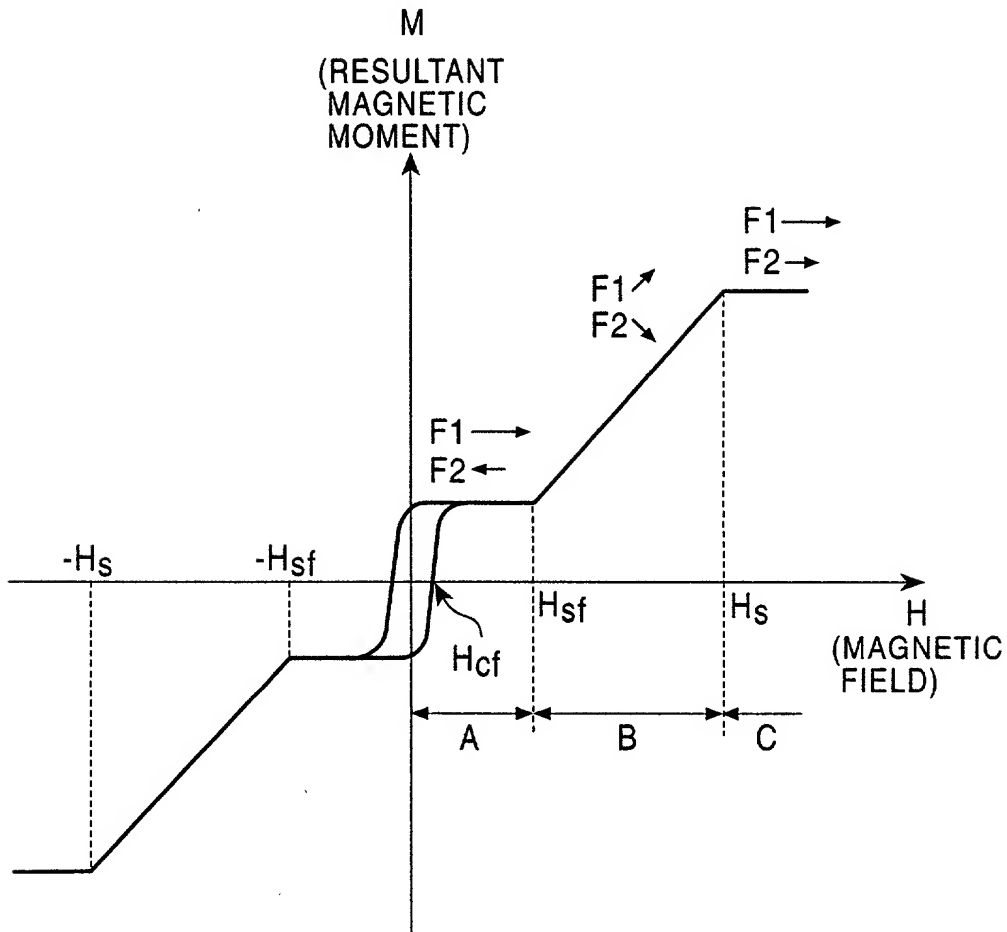


FIG. 12  
PRIOR ART

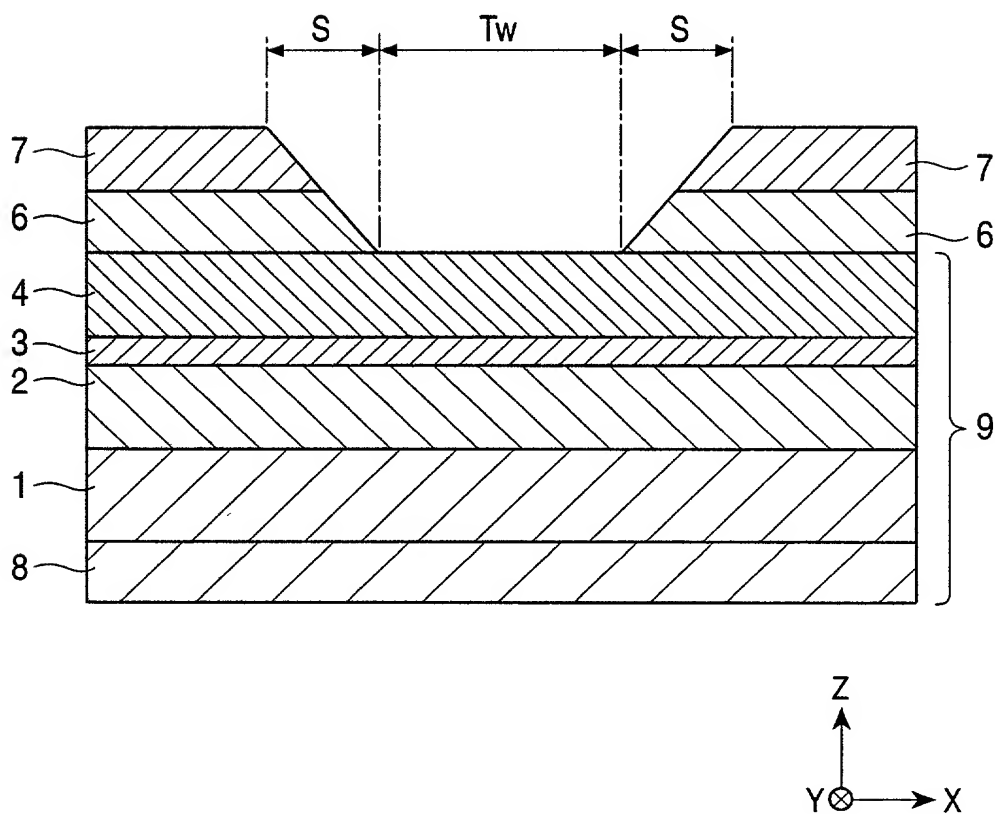
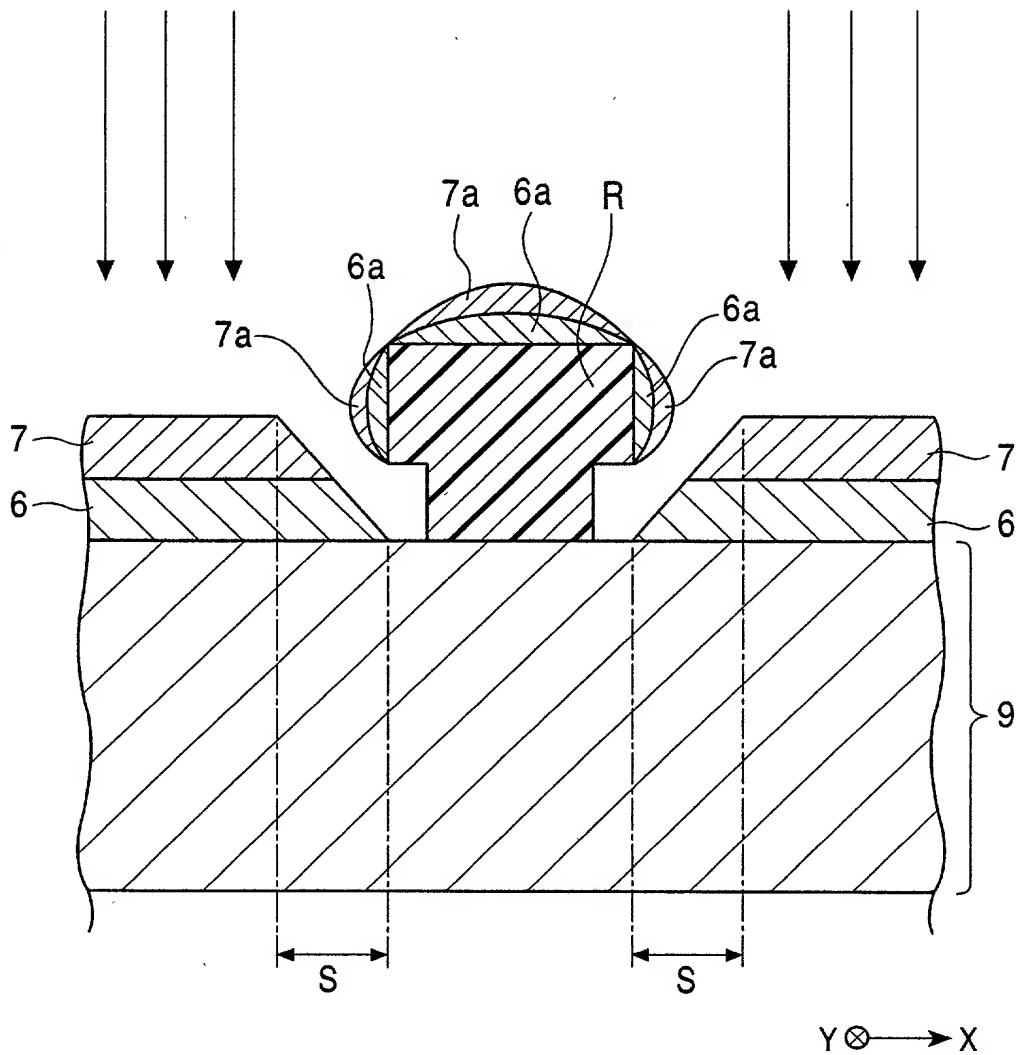


FIG. 13  
PRIOR ART



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FIG. 14

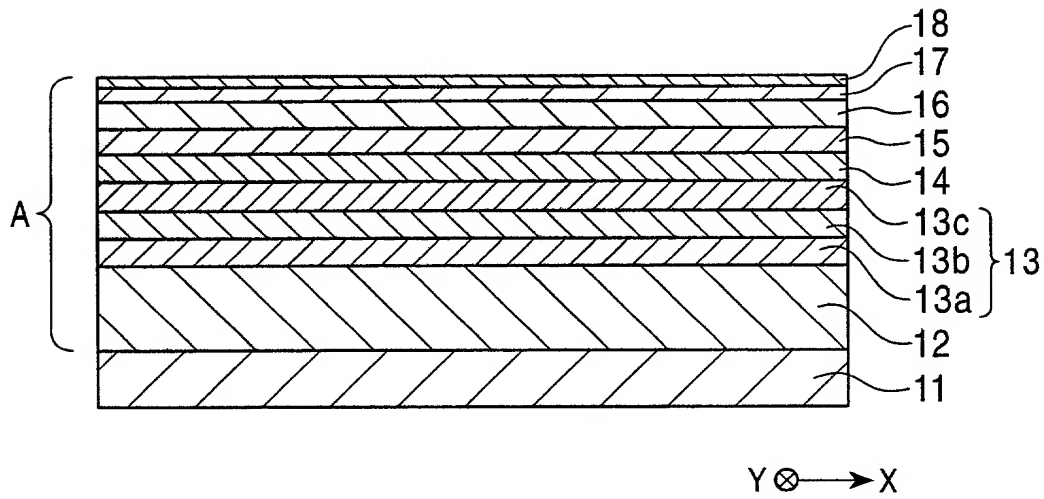
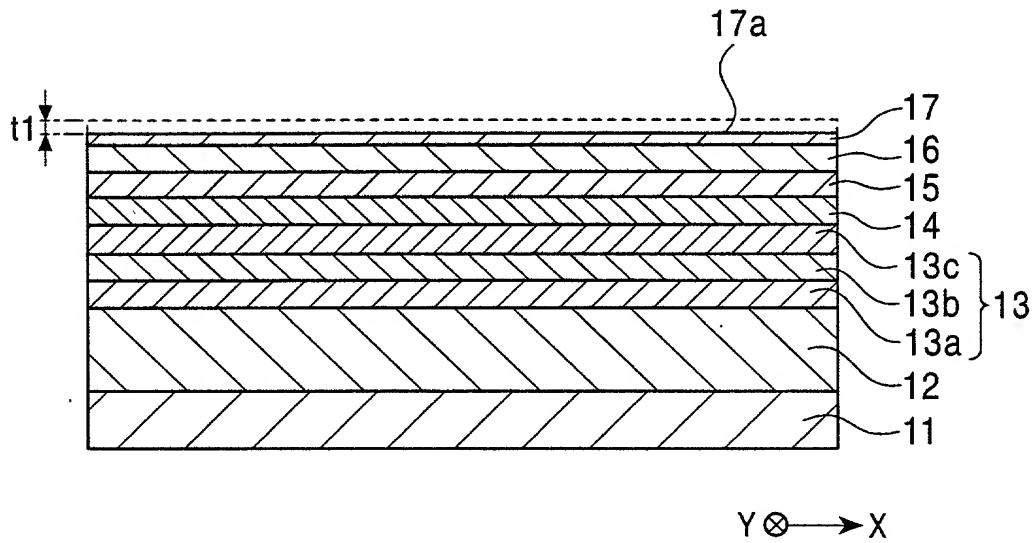


FIG. 15



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FIG. 16

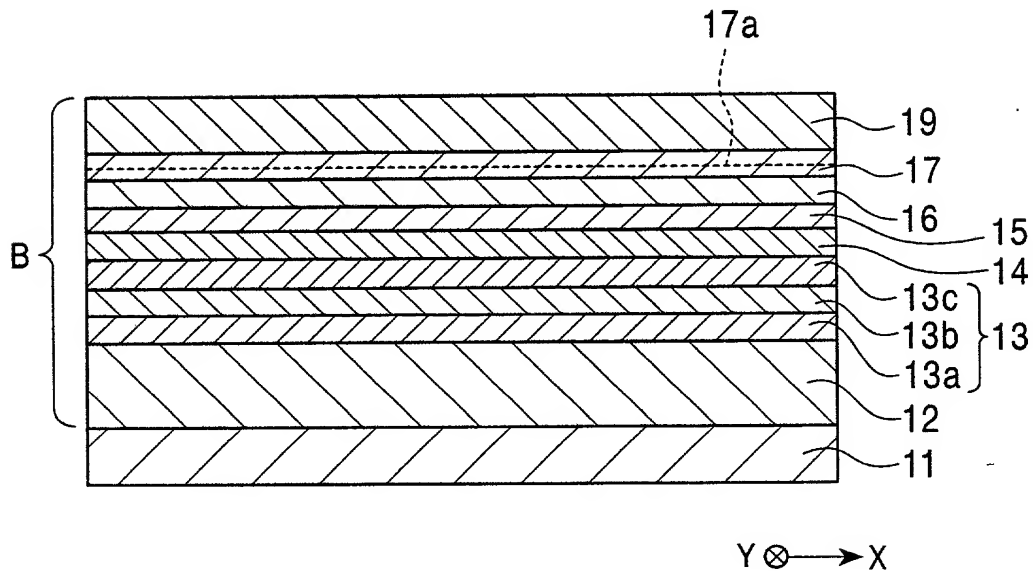
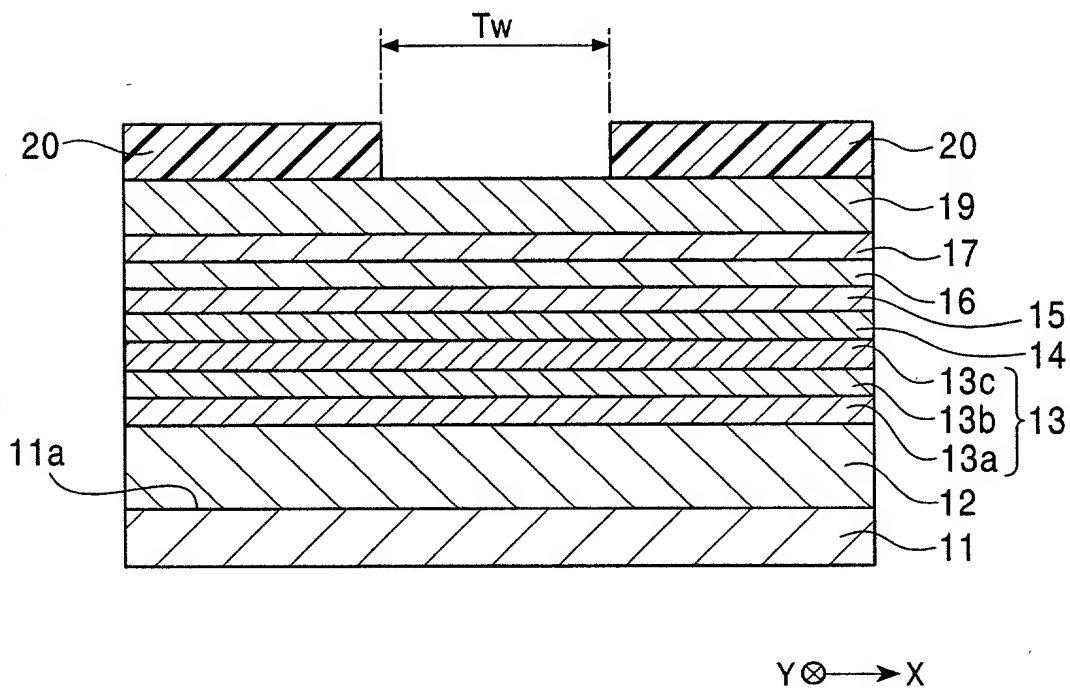
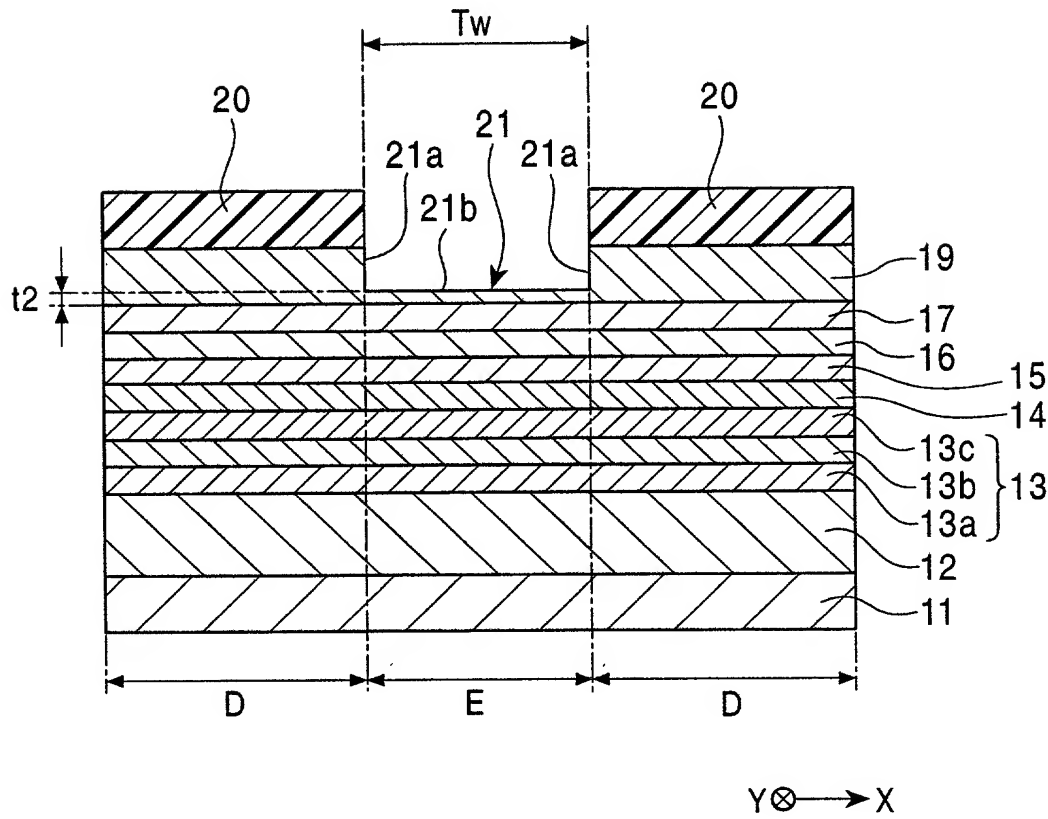


FIG. 17



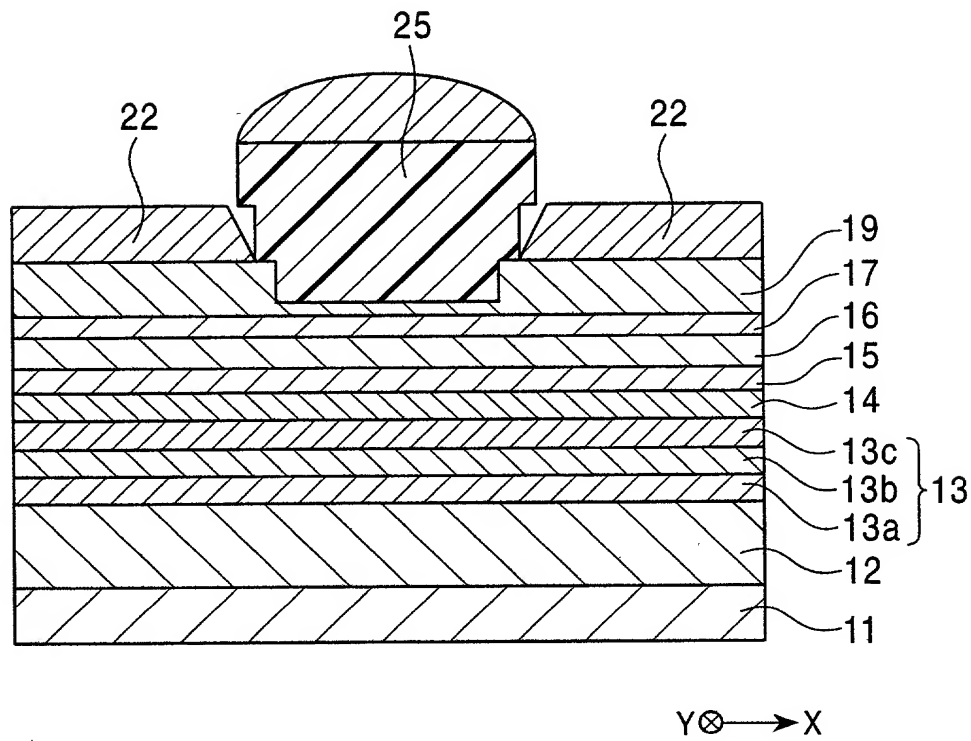
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FIG. 18



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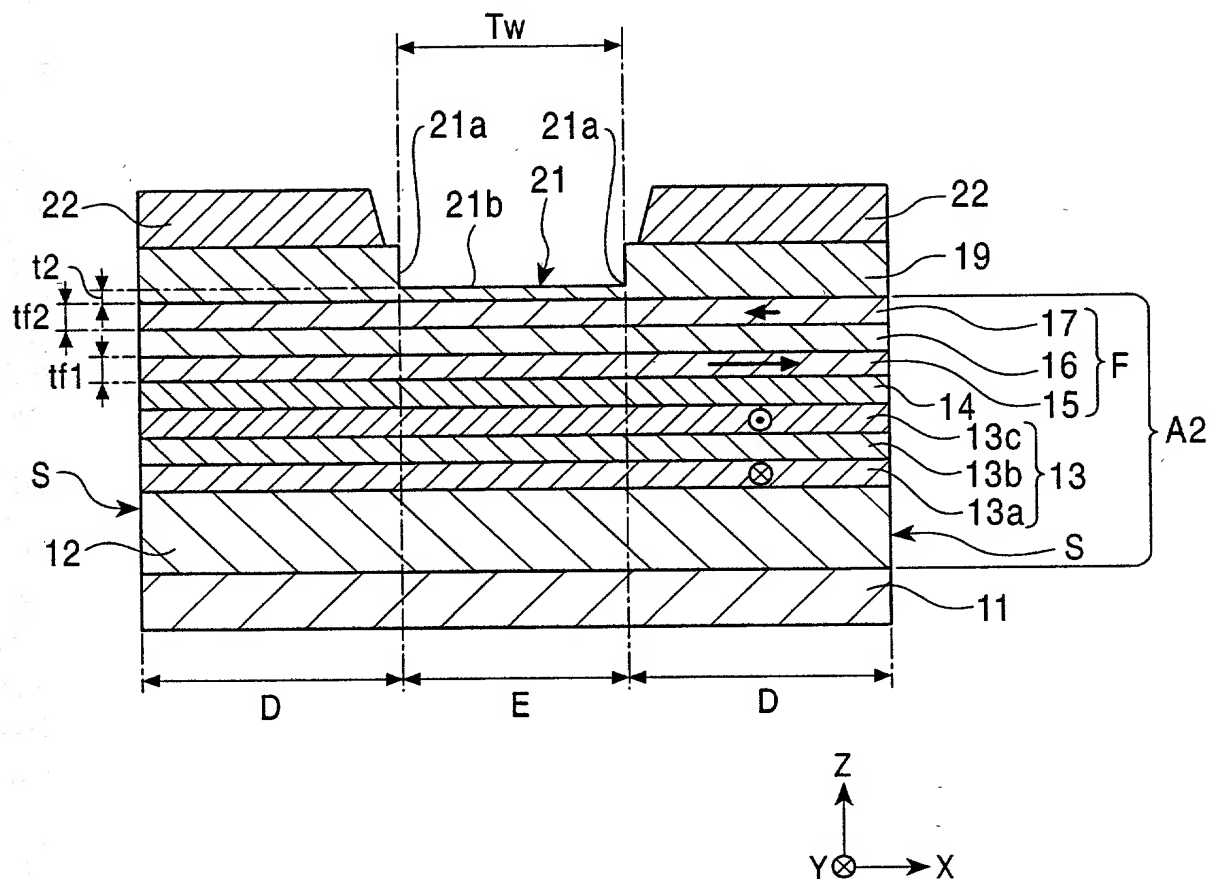
FIG. 19





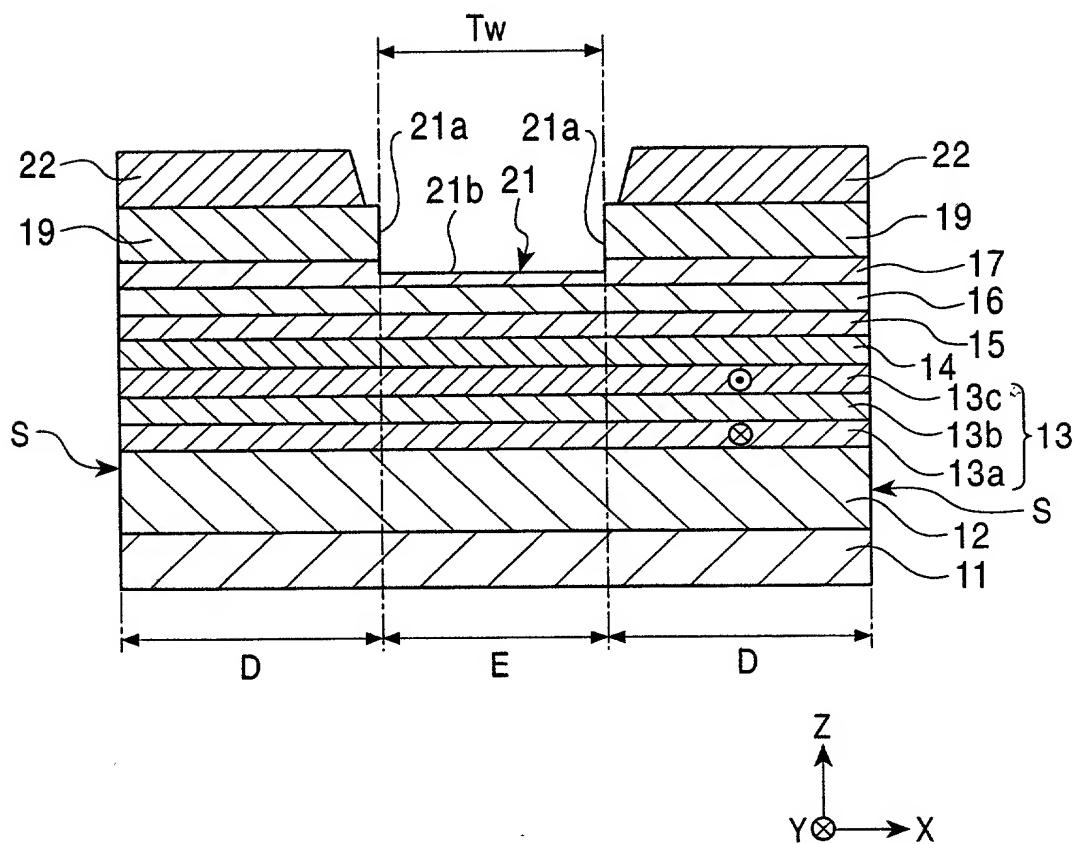
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FIG. 20



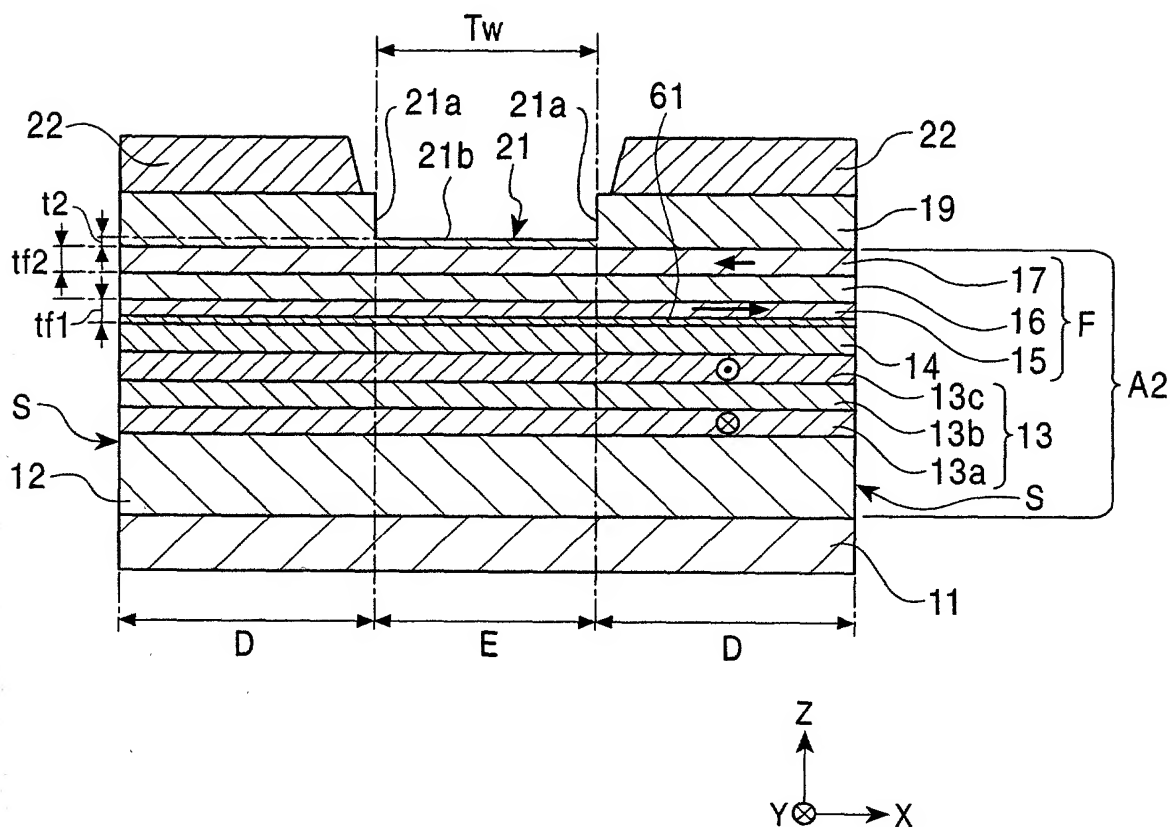
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FIG. 21



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FIG. 22



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FIG. 23

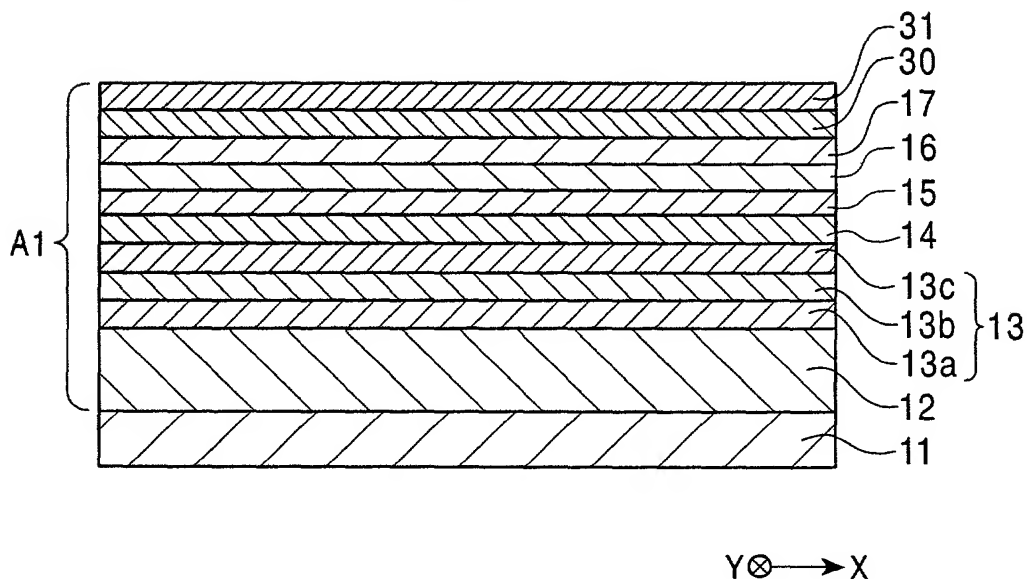
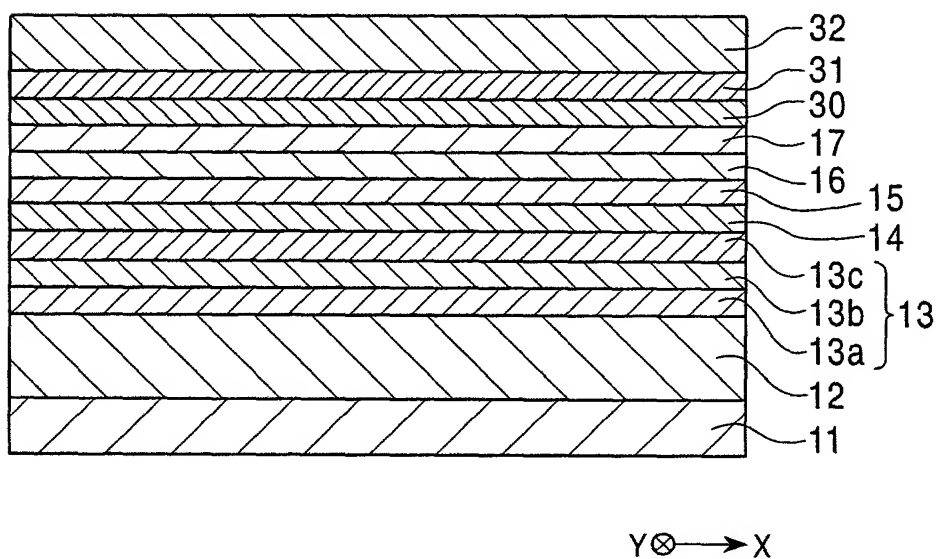


FIG. 24



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FIG. 25

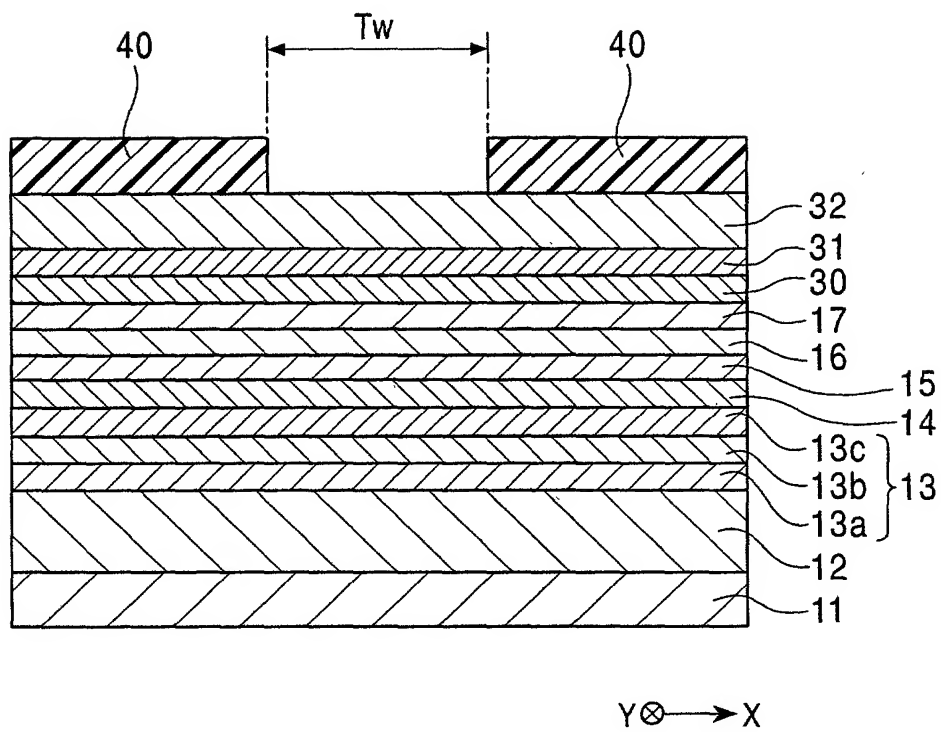
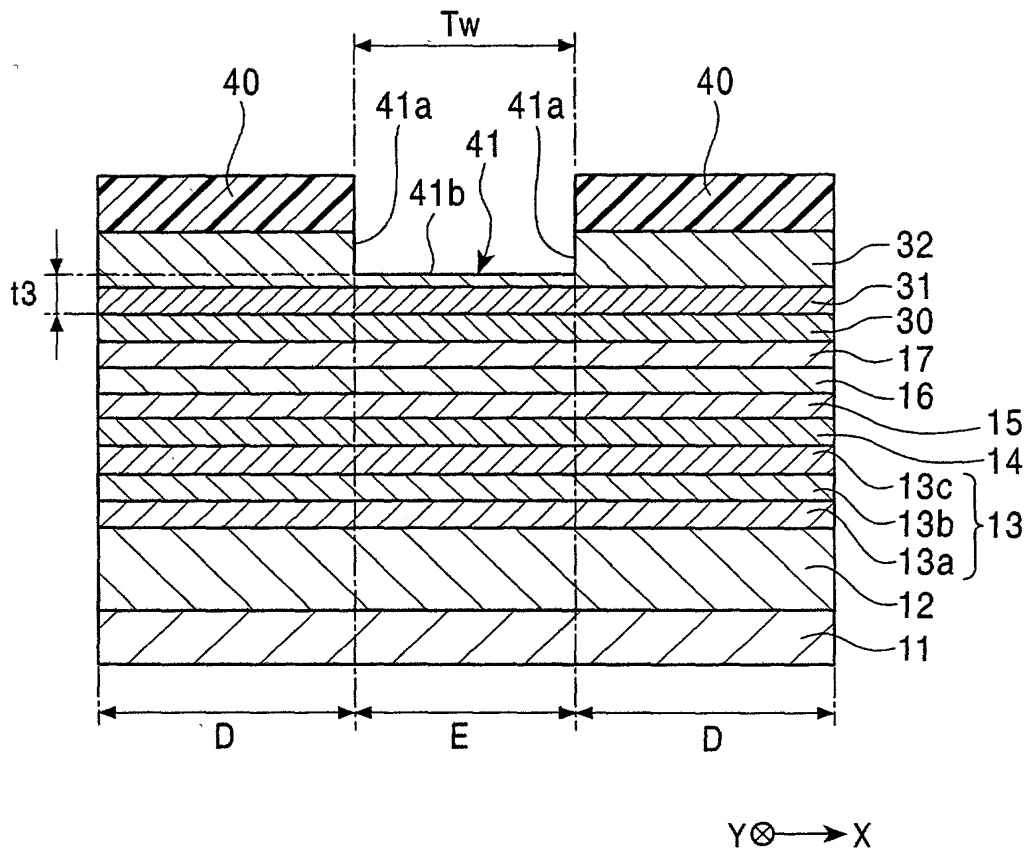
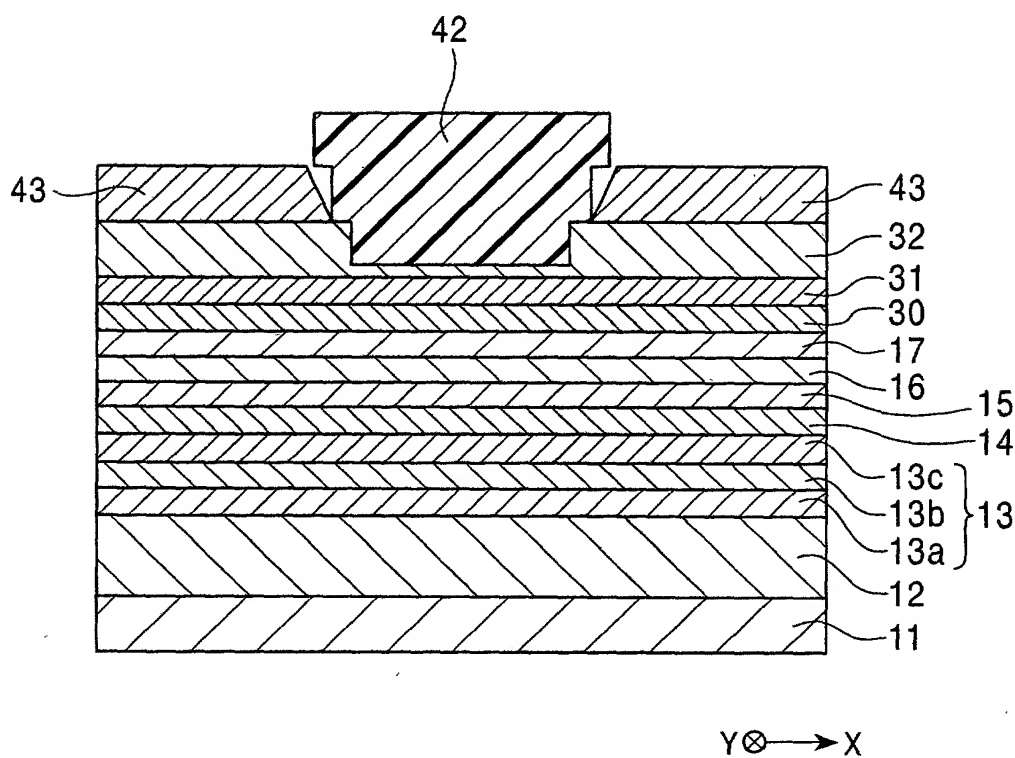


FIG. 26



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FIG. 27

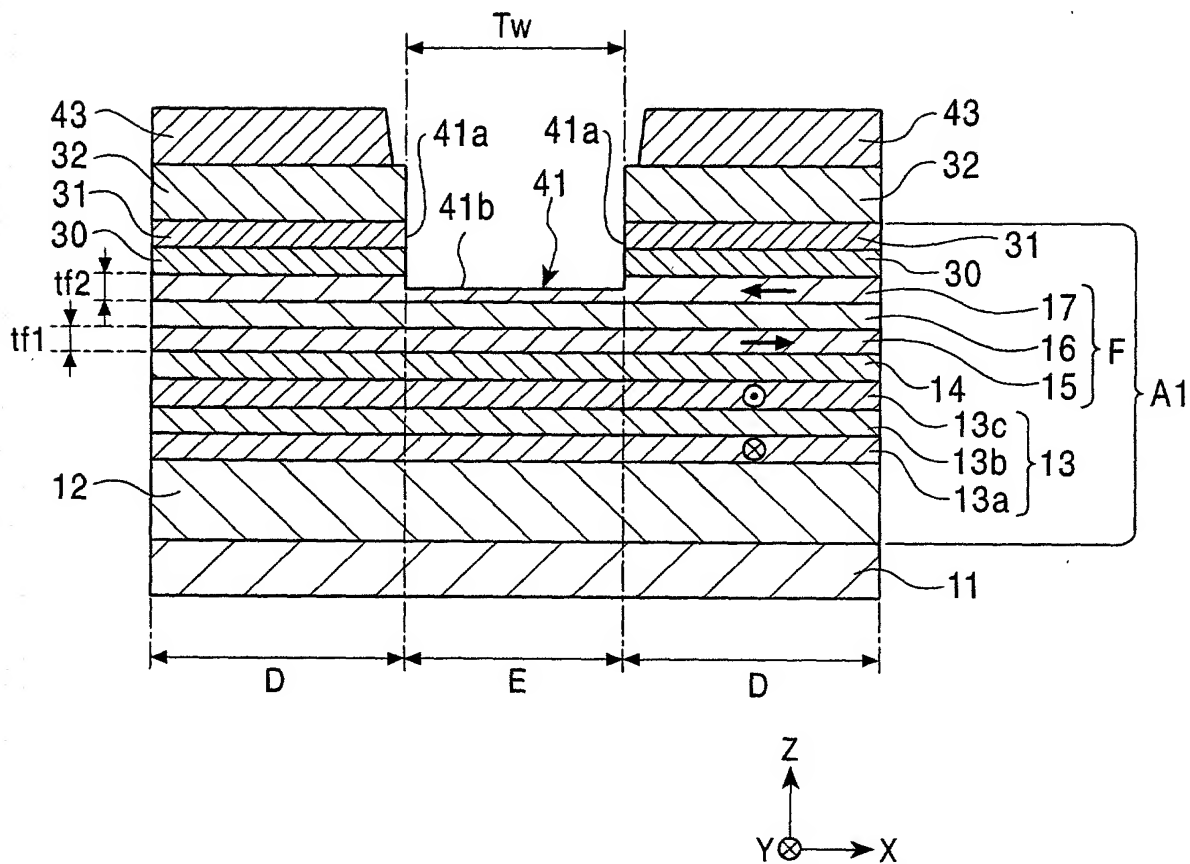


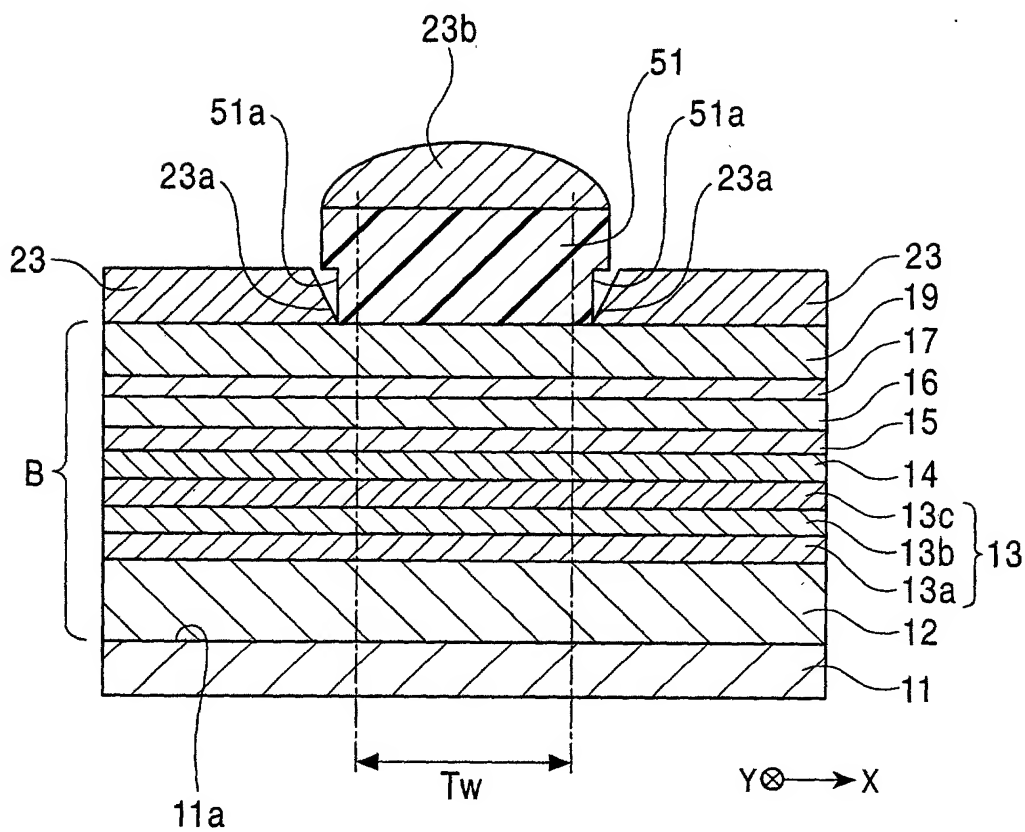




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FIG. 29





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FIG. 31

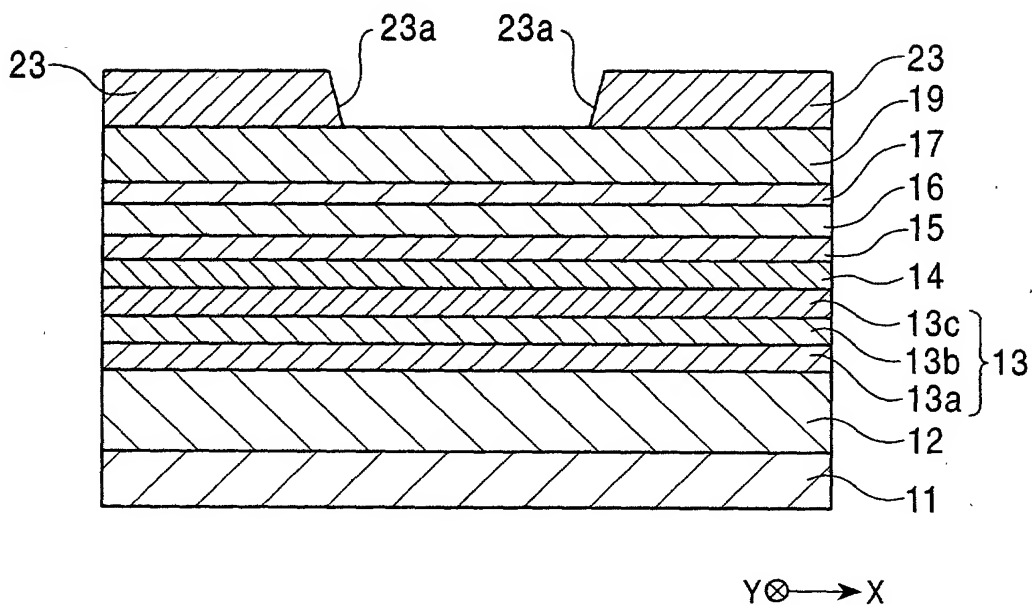
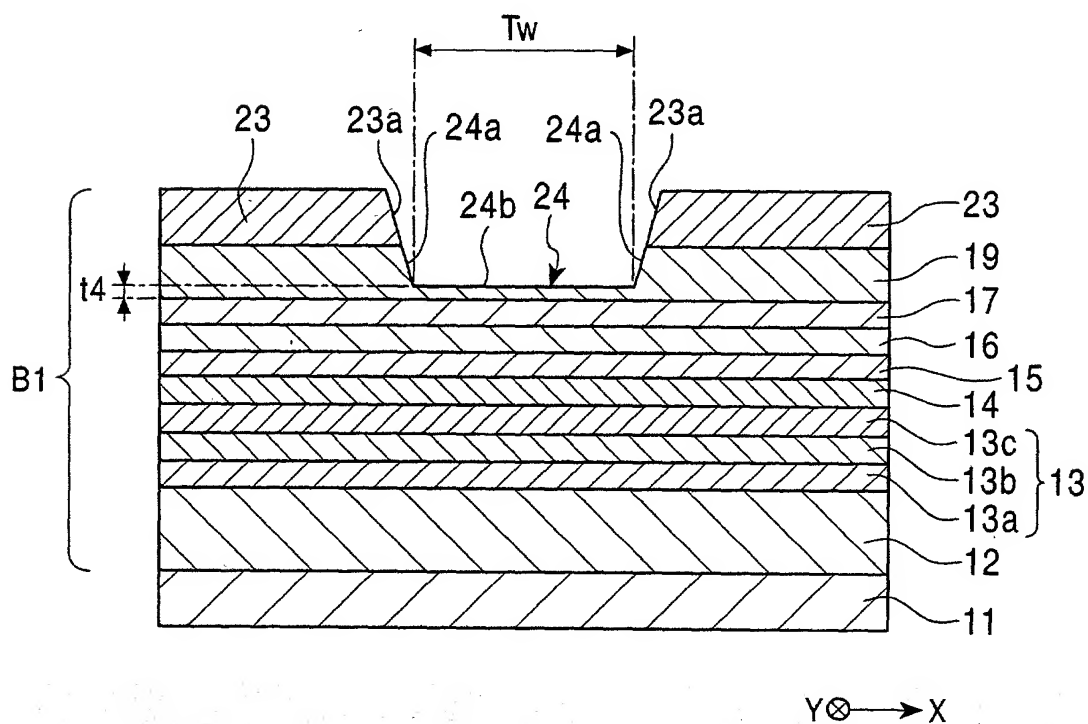
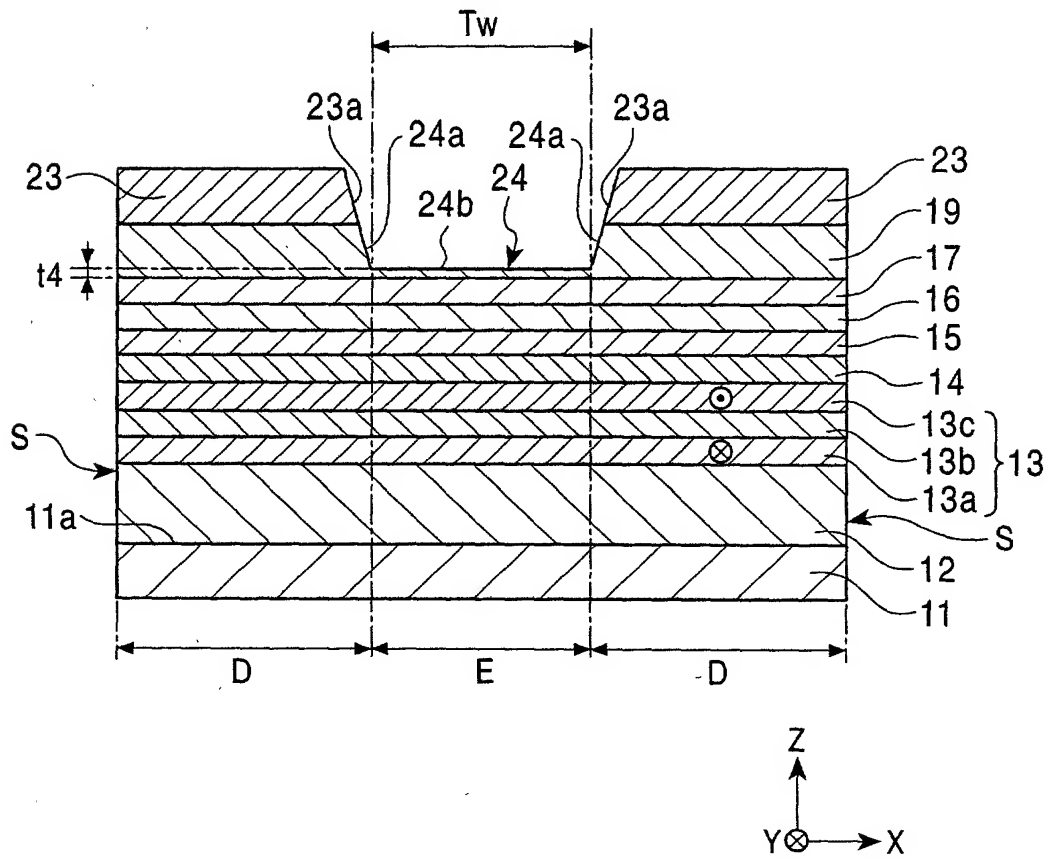


FIG. 32



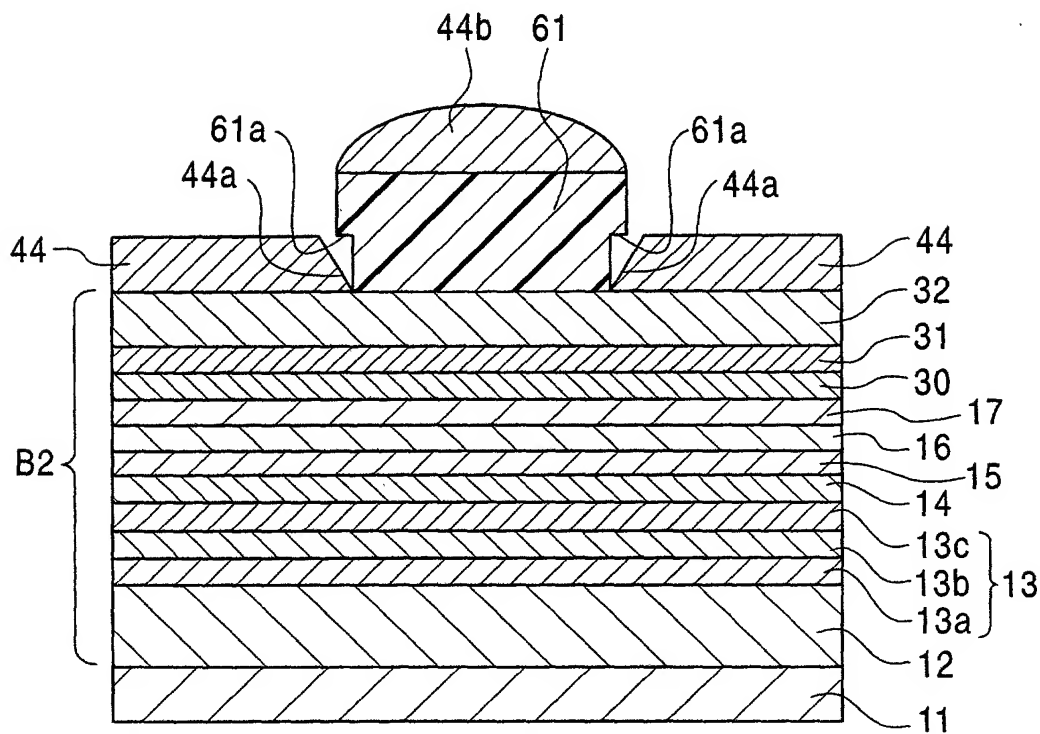
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FIG. 33



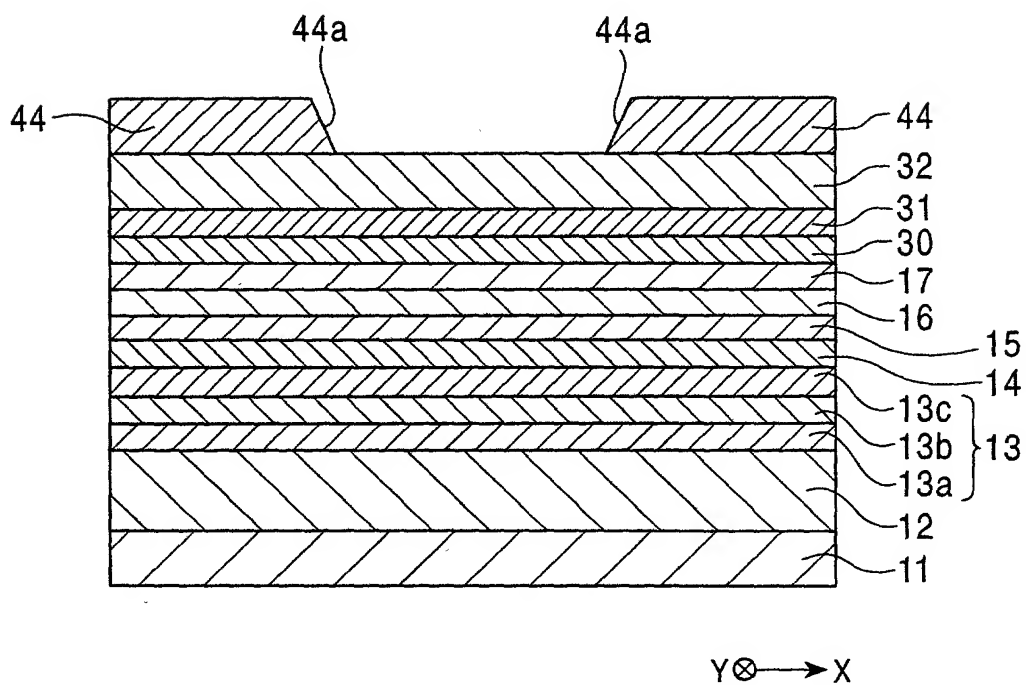
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FIG. 34



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FIG. 35



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FIG. 36

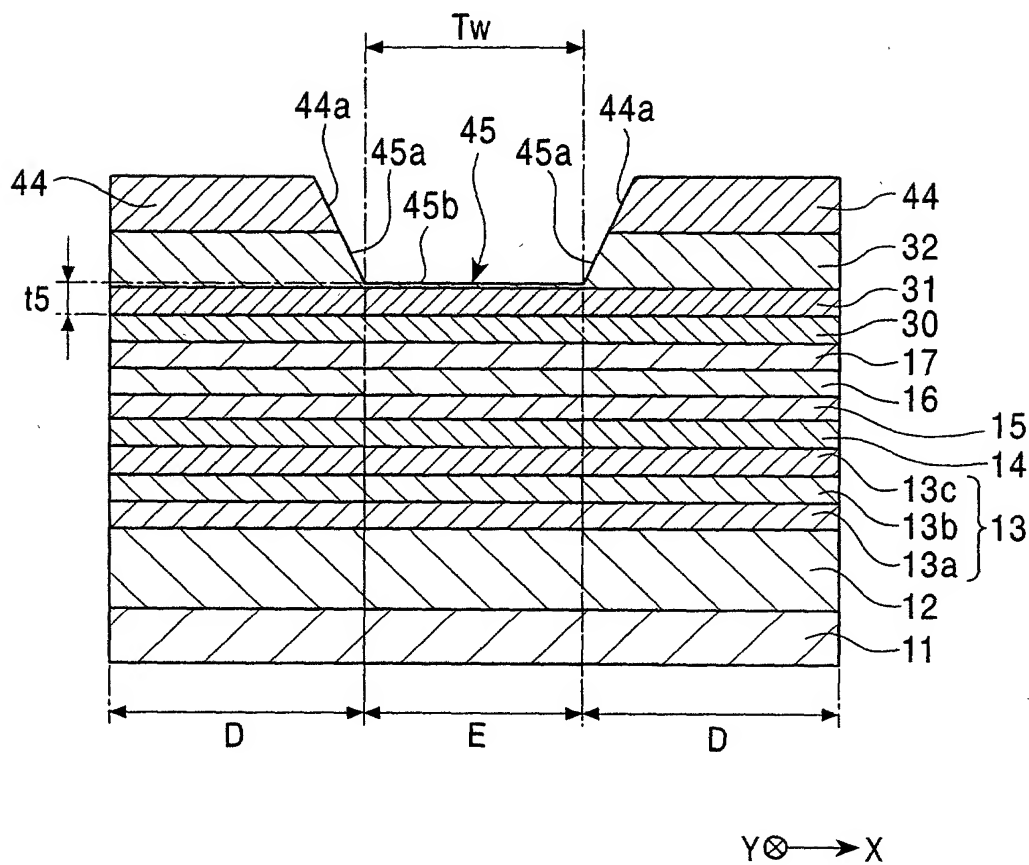


FIG. 37

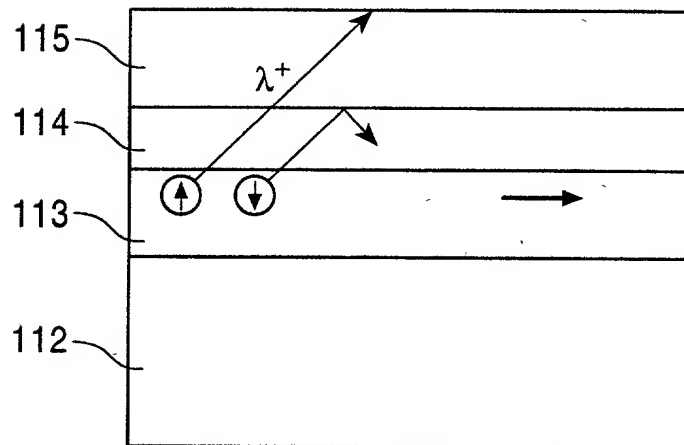


FIG. 38

